UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,872	11/04/2003	Kabi P. Padhi	03-SIN-094	6611

7590 09/28/2009

Lisa K. Jorgenson
STMicroelectronics, Inc.
1310 Electronics Drive
Carrollton, TX 75006

EXAMINER	
MONIKANG, GEORGE C	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
09/28/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/700,872	PADHI ET AL.	
	Examiner	Art Unit	
	GEORGE C. MONIKANG	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5/5/2008, with respect to the rejection(s) of claim(s) 1-25 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Pawate, US Patent 5719344 and Bae, US Patent 5565639.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 10-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 10-17 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court Precedent and recent Federal Circuit decisions indicate that a statutory "process" under 35 U.S.C. 101 must be tied to another statutory category (such as a particular apparatus) or transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim recites a series of steps or acts to be performed, the claim neither transforms underlying subject matter nor is positively tied to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process. For example the method including the steps of receiving, cross-correlating, identifying, generating, combining, filtering and decimating are of sufficient

breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine.

Claims 18-25 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 18-25 are rejected under 35 U.S.C. 101 because the specification does not clearly indicate what the computer readable medium is and thus it could have included carrier waves, transmission signals or any other kind of signals. Since carrier waves are non-statutory subject matter, the above claims are non-statutory. Appropriate correction to the specification to specify that the "computer readable medium excludes carrier waves, transmission signals or any other kind of transitory computer readable medium" is suggested to overcome 35 U.S.C. 101 rejection.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

i.

ii. Claims 1, 7-10, 16-18 & 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Pawate, US Patent 5719344.

iii. Re Claim 1 Pawate discloses an apparatus, comprising: a cross-correlator operable to receive a first audio signal and a second audio signals the cross-correlator also operable to cross correlate the first and second audio signals to produce a cross-correlated signal (*fig. 2: 30; col. 2, lines 24-32: mixer crosses the signals together*); at least one parameter identifier operable to receive the cross-correlated signal and identify a plurality of parameters associated with at least one of the first and second audio signals using the cross-correlated signal (*fig. 2: 19; col. 2, lines 24-41*); and a score generator operable to receive the plurality of parameters and generate an indicator identifying an extent to which the and second audio signals match (*fig. 2: 37; abstract*).

Re Claim 7, Pawate discloses the apparatus of Claim 1, further comprising a voice activity detector operable to detect a voice in the input signal; wherein the score generator is operable to generate the indicator after the voice activity detector detects the voice in the input signal (*col. 1, lines 28-34*).

Claims 8-10 have been analyzed and rejected according to claim 1.

Claim 16 has been analyzed and rejected according to claim 7.

Claims 17-18 have been analyzed and rejected according to claim 1.

Claim 24 has been analyzed and rejected according to claim 7.

Claim 25 has been analyzed and rejected according to claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2-6, 11-15 & 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pawate, US Patent 5719344, in view of Bae, US Patent 5565639.

Re Claim 2, Pawate discloses the apparatus of Claim 1, wherein the at least one parameter identifier comprises: a correlation identifier operable to identify an amount of correlation between the first and second audio signals (*fig. 2: 19; col. 2, lines 24-41*); and a pitch variation identifier operable to identify a variation in pitch between the first and second audio signals (*col. 3, line 55 through col. 4, line 4*) but fails to explicitly disclose a delay identifier operable to identify a delay between the first and second audio signals. However, Bae discloses a karaoke machine that compensates for the delay (*Bae, col. 4, lines 47-51*) between a first signal (*Bae, fig. 1: 5*) and a second signal (*Bae, fig. 1: 55*). It would have been obvious to modify the Pawate system with a delay

identifier as taught in Bae for the purpose of compensating for the delay of the two signals inputted into the karaoke machine when generating the scores.

Claim 3 has been analyzed and rejected according to claim 2.

Re Claim 4, the combined teachings of Pawate and Bae disclose the apparatus of Claim 2, wherein the score generator is operable to generate the indicator by: generating a first score using the delay between the first and second audio signals and the amount of correlation between the first and second audio signals (*Bae, col. 4, lines 47-51: delay is taken into account when obtaining the score*); generating a second score using the variation in pitch between the first and second audio signals; and combining the first and second scores to produce a final score (*Pawate, col. 3, line 55 through col. 4, line 4*).

Re Claim 5, Pawate discloses the apparatus of claim 1, but fails to disclose wherein the first audio signal is associated with an input signal and the second audio signal is associated with a reference signal (Bae, fig. 1; col. 2, line 59 through col. 2, line 57 through col. 3, line 8); and further comprising: a plurality of decimators operable to receive and decimate the input signal and the reference signal (Bae, fig. 1: 9 & 45; col. 2, line 59 through col. 2, line 57 through col. 3, line 8); and a plurality of filters operable to filter at least one of the input signal, the reference signal (Bae, fig. 1: 8 & 50; col. 2, line 59 through col. 2, line 57 through col. 3, line 8), a decimated input signal, and a decimated reference signal (Bae, fig. 1; col. 2, line 59 through col. 2, line 57 through col. 3, line 8) as taught in Bae. It would have been obvious to modify the Pawate system

with a plurality of filters and decimators as taught in Bae for the purpose of varying the passband.

Re Claim 6, the combined teachings of Pawate and Bae discloses the apparatus of claim 5, wherein the plurality of filters comprise a second of the decimators operable to decimate the filtered reference signal (Bae, fig. 1; col. 2, line 59 through col. 2, line 57 through col. 3, line 8); a first band pass filter operable to filter the decimated input signal to produce the first audio signal (Bae, fig. 1: 8 & 50; col. 2, line 59 through col. 2, line 57 through col. 3, line 8); and a second band pass filter operable to filter the decimated reference signal to produce the second audio signal (Bae, fig. 1: 8 & 50; col. 2, line 59 through col. 2, line 57 through col. 3, line 8); but fails to explicitly disclose a first anti aliasing low pass filter operable to filter the input signal, a first of the decimators operable to decimate the filtered input signal; a second anti-aliasing low pass filter operable to filter the reference signal. However, Bae discloses a digital filter that is able to remove high and low frequency components (*Bae, col. 2, lines 46-58*). It would have been obvious to utilize multiple low pass filters to cut out the high frequency components for the purpose of passing certain frequencies.

Claims 11-12 have been analyzed and rejected according to claim 2.

Claim 13 has been analyzed and rejected according to claim 4.

Claim 14 has been analyzed and rejected according to claim 5.

Claim 15 has been analyzed and rejected according to claim 6.

Claims 19-20 have been analyzed and rejected according to claim 2.

Claim 21 has been analyzed and rejected according to claim 4.

Claim 22 has been analyzed and rejected according to claim 5.

Claim 23 has been analyzed and rejected according to claim 6.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GEORGE C. MONIKANG whose telephone number is (571)270-1190. The examiner can normally be reached on M-F. alt Fri. Off 7:30am-5:00pm (est).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George C Monikang/ 9/23/2009
Examiner, Art Unit 2614

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2614